HP Z8 G5 Workstation Desktop PC

Supercharge processor-intensive workloads.

Harness the incredible CPU performance of the Z8 AI workstation. With its dual-socket design, accelerate intensive multi-threaded workflows, across AI and machine learning model training, real-time ray tracing, and 3D visualization & simulation, with plenty of room to expand as demands change.

Exceptional performance. Extraordinary expandability.

Tackle processor-intensive workflows with up to 64 cores[1] across 2 Intel® Xeon® W CPUs, 2 high-end GPUs[2], and 1 TB DDR5 RAM[3]. Easily expand as work evolves with tool-less access, 7 PCIe slots, and 2 front accessible NVMe bays.[3]

Engineered to stay cool and quiet.

Push your desktop workstation without disruptive noise. Smart fan control keeps the system whisper-quiet by tuning fan speeds in real-time using over 20 temperature sensors. Precisely placed vents and ducts streamline airflow and heat removal.

Ignite AI innovation.

Accelerate AI development and inferencing with the Z8 AI workstation, with up to 2 NVIDIA RTX™ 6000 Ada Generation GPUs[4] delivering up to 2,914 AI TOPS for advanced AI. Process proprietary data securely on a local workstation to gain insights faster.



*Product image may differ from actual product

Sustainability in action

Designed with the planet in mind

At HP, we care about the impact our products have on our people, communities, and planet. That's why the Z8 contains 40% recycled plastics,[5] 10% recycled metal, 100% sustainably sourced outer box packaging, and is EPEAT® Gold Climate+ registered.[6,7]

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Featuring

Operating Systems
Support your unique user needs with a choice of Windows 11 Pro, WSL2 or Linux® operating systems.[8]

Intel® Xeon® Processors
Power demanding professional workloads with more CPU performance than ever before—up to 64 cores[9] with 2 next-gen Intel® Xeon® CPUs—and professional grade security[10] and reliability[11].

Professional Grade Graphics
Tackle processor-heavy rendering, machine learning, and data visualization projects with up to 2 NVIDIA RTX™ 6000 or 2 AMD Radeon™ Pro W6800 GPUs.[12]

Ultra Fast Memory Configurations
Power through memory-intensive workloads with up to 1 TB DDR5 memory[13] for fast CPU-dependent rendering, model training and development, and data visualization performance.

Storage
Get up to 130TB of storage across a variety of devices, including two front accessible, hot-swappable NVMe devices with status information via external LED and email notifications.[14]

Word Class Design & Acoustics
Keep quiet, cool and focused even at peak performance. Smart fan control keeps the system whisper-quiet by tuning fan speeds in real-time using over 20 temperature sensors.

Fast Data Transfer and Network Connectivity
Thunderbolt™ 4 technology[15] for fast data transfers, and two ports of lightning-quick 10 GbE network connection at a lower cost than standard PCIe add-in cards.

HP Anyware
Access the power of your Z from any device with HP Anyware[16]—remote access software delivering fast responsiveness and image quality, even in film editing and data visualizations.

Smart Support with HP TechPulse
Get enhanced support and reduce downtime. HP Smart Support provides support agents, secure access to device health insights, and configuration data for faster troubleshooting.[17]

Z by HP Data Science Stack Manager
Z by HP Data Science Stack Manager provides easy access to popular data science tools and updates them automatically, to help you customize your environment on Windows or Ubuntu.[18]

ISV Certified
Work with confidence knowing your desktop is certified with leading software applications to ensure peak performance even with complex projects.

HP Wolf Security for Business
Get a hardware-enforced, always-on defense. From the BIOS to the browser - above, in, and below the OS - these constantly evolving solutions help protect from modern threats.[19] Now with factory-enabled RAID for data protection.

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Technical specifications

Available Operating Systems	Windows 11 Pro for Workstations[2,3] Ubuntu 22.04 LTS Linux® Ready[5] Red Hat® Enterprise Linux®[5]
Processor family	Intel® Xeon® Scalable processor
Available Processors[6,7,30]	Intel® Xeon® Gold 6548Y+ (up to 4.1 GHz with Intel® Turbo Boost Technology, 60 MB L3 cache, 32 cores, 64 threads) Intel® Xeon® Gold 6542Y (up to 4.1 GHz with Intel® Turbo Boost Technology, 60 MB L3 cache, 24 cores, 48 threads) Intel® Xeon® Gold 6530 (up to 4.0 GHz with Intel® Turbo Boost Technology, 160 MB L3 cache, 32 cores,64 threads) Intel® Xeon® Gold 6526Y (up to 3.9 GHz with Intel® Turbo Boost Technology, 37.5 MB L3 cache, 16 cores, 32 threads) Intel® Xeon® Gold 5520+ (up to 4.0 GHz with Intel® Turbo Boost Technology, 52.5 MB L3 cache, 28 cores, 56 threads) Intel® Xeon® Silver 4516Y+ (up to 3.7 GHz with Intel® Turbo Boost Technology, 45 MB L3 cache, 24 cores, 48 threads) Intel® Xeon® Silver 4514Y (up to 3.4 GHz with Intel® Turbo Boost Technology, 30 MB L3 cache, 16 cores, 32 threads) Intel® Xeon® Silver 4510 (up to 4.1 GHz with Intel® Turbo Boost Technology, 30 MB L3 cache, 12 cores, 24 threads) Intel® Xeon® Silver 4509Y (up to 4.1 GHz with Intel® Turbo Boost Technology, 22.5 MB L3 cache, 8 cores, 16 threads)
Chipset	Intel® C741
Form factor	Tower
Maximum memory	1 TB DDR5-5600 MT/s ECC; [11] Transfer rates up to 5200 MT/s.
Memory slots	16 DIMM (with dual processors)
Internal storage	1 TB up to 12 TB 7200 rpm SATA Enterprise HDD[8,40] 512 GB up to 2 TB HP Z Turbo Drive NVMe™ M.2 SSD[8] 512 GB up to 4 TB HP Z Turbo Drive PCIe® SSD M.2[8] 512 GB up to 4 TB HP Z Turbo Drive PCIe® SED Opal 2 M.2 SSD[8] 512 GB up to 4 TB HP Z Turbo Drive Dual Pro PCIe® SSD[8] 512 GB up to 4 TB HP Z Turbo Drive PCIe® SSD[5,41]
Optical drive	HP Slim DVD-ROM; HP Slim Blu-ray Writer; HP Slim DVD-Writer [9,10]
Available Graphics	Ultra High-End: NVIDIA RTX™ 6000 Ada Generation (48 GB GDDR6 dedicated); NVIDIA RTX™ A6000 (48 GB GDDR6 dedicated); NVIDIA RTX™ 5000 Ada Generation (32 GB GDDR6 dedicated); NVIDIA RTX™ A5000 (24 GB GDDR6 dedicated); AMD Radeon™ Pro W7900 (48 GB GDDR6 dedicated); AMD Radeon™ Pro W6800 (32 GB GDDR6 dedicated)[29] High-End: NVIDIA RTX™ 4500 Ada Generation (24 GB GDDR6 dedicated); NVIDIA RTX™ A4500 (20 GB GDDR6 dedicated); NVIDIA RTX™ 4000 Ada Generation (20 GB GDDR6 dedicated); NVIDIA RTX™ A4000 (16 GB GDDR6 dedicated); NVIDIA® A4000E (16 GB GDDR6 dedicated); NVIDIA RTX™ 2000 Ada Generation (16 GB GDDR6 dedicated); NVIDIA RTX™ A2000 (12 GB GDDR6 dedicated); NVIDIA RTX™ A2000E (12 GB GDDR6 dedicated)[29] Mid-Range: NVIDIA® T1000 (8 GB GDDR6 dedicated); NVIDIA® T1000E (8 GB GDDR6 dedicated); AMD Radeon™ Pro W6600 (8 GB GDDR6 dedicated); Intel® Arc™ Pro A40 (6 GB GDDR6 dedicated); AMD Radeon™ Pro W7600 (8 GB GDDR6 dedicated)[29] Entry: NVIDIA® T1000 (4 GB GDDR6 dedicated); NVIDIA® T400 (4 GB GDDR6 dedicated); AMD Radeon™ RX 6400 (4 GB GDDR6 dedicated)[39]
Audio	Realtek ALC3205-CG
Expansion slots	1 PCIe 3 x16; 1 PCIe 3 x8; 2 PCIe 3 x4; 1 PCIe 5 x16; 2 PCIe 4 x16; 2 PCIe 4 x8 (Rear bulkhead access can be achieved through all slots but 2 PCIe 4 x8 are internal access only for M.2 (1 PCIe 4 x16 available when 2nd CPU is not installed; 1 PCIe 3 x16 available only when 2nd CPU is installed).)
Ports and connectors	Front: 4 SuperSpeed USB Type-A 5Gbps signaling rate; 1 headphone/microphone combo[31] ; Rear: 6 SuperSpeed USB Type-A 5Gbps signaling rate; 1 audio-in/out; 2 RJ-45 (1 GbE AMT, 1GbE, optional 10GbE) ; Optional Ports: 2 Thunderbolt™ 4 with USB Type-C® 40Gbps signaling rate (USB Power Delivery, DisplayPort™ 1.4)
Input devices	HP USB Business Slim SmartCard CCID Keyboard; HP USB 320K Keyboard; HP 125 Black Wired Keyboard[13]; HP wired desktop 128 laser mouse; HP Wired 320M Mouse[13]
Communications	LAN: Intel® Ethernet Network Adapter I225-T1; Integrated Intel® I219-LM PCIe® GbE, vPro®; Integrated Intel® I210-AT PCIe® GbE, non-vPro®; HP dual-port 10GBase-T NIC; Intel® X550-T2 dual-port GbE NIC; Intel® X550-T2 dual-port 10GbE NIC; NVIDIA® Mellanox ConnectX-6 DX Dual Port 10/25GbE SFP28 NIC; Allied Telesis AT-2911T/2-901 dual-port 1GbE NIC; Allied Telesis AT-2914SX/LC PCIe Fiber NIC; HP 10 GbE SFP+ SR LC Fiber transceiver; HP 25 GbE SFP28 LC Fiber transceiver[39] ; WLAN: Intel® Wi-Fi 6E AX210 (2x2) and Bluetooth® 5.3 wireless card, non-vPro® with external antenna
Drive Bays	Two 9.5 mm ODD Six PCIe® M.2 SSD; Six 3.5" HDD
Software	HP Performance Advisor; HP Support Assistant; HP PC Hardware Diagnostics Windows; HP Image Assistant; HP Manageability Integration Kit; HP Anyware; HP Services Scan; HP Data Science Stack Manager[17,18,19,37]; HP UEFI BIOS Certification Level 2.7B
Security management	Full volume encryption; HP Secure Erase; Kensington lock slot; Secure authentication; TPM 2.0 certified; HP BIOSphere; HP Sure Run; HP Sure Click; HP Sure Sense; HP Sure Admin; HP Platform Certificate; HP Sure Start; HP Sure Recover; Self-Encrypted Drives
Security Software Licenses	HP Wolf Pro Security Edition[28]

HP Z8 G5 Workstation Desktop PC

Technical specifications

Management features	HP Driver Packs; HP System Software Manager (download); HP BIOS Configuration Utility (download); HP Smart Support
Memory card device	1 SD card reader (optional)
Power	1700 W internal power supply, up to 90% efficiency, active PFC; 1450 W internal power supply, up to 90% efficiency, active PFC; 1125 W internal power supply, up to 90% efficiency, active PFC1700 W internal power supply, up to 90% efficiency, active PFC; 1450 W internal power supply, up to 90% efficiency, active PFC; 1125 W internal power supply, up to 90% efficiency, active PFC
Dimensions	21.59 x 55.12 x 44.45 cm; 33.2 x 73.4 x 63.6 cm (Package)
Weight	Starting at 22.5 kg; (Exact weights depend upon configuration (System weight only))
Ecolabels	EPEAT® registered configurations available; TCO Certified configurations available[14,15]
Energy star certified	ENERGY STAR® certified (configurations available)
Sustainable impact specifications	Low Halogen; 40% post-consumer recycled plastic; 25% ITE-derived closed loop plastic; Bulk packaging available; External power supply 90% efficiency; Plastic cushion inserts contain 80% recycled content; Ocean-bound plastic in system fan; 10% post-industrial recycled metal; Molded paper pulp cushion inside box is 100% sustainably sourced and recyclable[16,33,34,35,36]
Compatible displays	All HP Z Displays and HP DreamColor Displays are supported. For more information see http://www.hp.com/go/zdisplays

HP Z8 G5 Workstation Desktop PC

Footnotes

Messaging Footnotes

[1] 64 cores is enabled through installation of two CPUs. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
[2] Graphics are sold separately or as an optional feature.
[3] Optional, configurable features.
[4] Graphics are sold separately or as an optional feature.
[5] Applies to HP PCs, Workstations, and Displays manufactured after January 2019. Based on most Gold and Silver (including Climate+) EPEAT® registrations. Status varies by country. Visit www.epeat.net for more information.
[6] Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 EPEAT standard.
[7] Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more information.
[8] Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com .
[9] 64 cores is enabled through installation of two CPUs. Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
[10] Professional grade security is enabled with Intel vPro®2 Enterprise technologies. Intel vPro® Enterprise technologies are available only on Intel® Xeon® W-3500 and Intel® Xeon® W-2500 processors. Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro .
[11] Error Correction Code (ECC) Memory enables enhanced data reliability. ECC memory is only available on Intel® Xeon® processor options.
[12] Graphics are sold separately or as an optional feature.
[13] Up to 1 TB DDR5 memory is an optional, configureable feature.
[14] Configuration for 130TB requires after-market purchase. Two front accessible NVMe bays require a 5.25 bay carrier. For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB is reserved for system recovery software.
[15] Thunderbolt™ 4 technology and two ports of 10 GbE network connection are planned to be available in the second half of 2023. SuperSpeed USB 20Gbps is not available with Thunderbolt™ 4.
[16] Network access required. HP Anyware software and licensing are available through a 1- or 3-year subscription. Renewal is required after the subscription term. HP Anyware subscriptions are based on the number of concurrent PCoIP connections used (pay for the number of host connections, not the software) with a minimum order quantity of 5. For a limited time, an HP Anyware Professional subscription also includes access and support for ZCentral Remote Boost and ZCentral Connect and is available for purchase through an HP reseller or contact sales at hp.com/Anyware. ZCentral Remote Boost Sender requires Windows 10 and 11, RHEL/CentOS (7 or 8), or UBUNTU 18.04 or 20.04 LTS operating systems. macOS (10.14 or newer) operating system and ThinPro 7.2 are only supported on the receiver side. ZCentral Connect requires Windows (10 or 11) or Windows Server (2016 or 2019) operating system, Microsoft Active Directory and Intel Active Management Technology for select features. For system requirements and to install HP Anyware and Anyware Manager, refer to the Admin Guides at: https://docs.teradici.com/find/product/hp-anyware .
[17] HP Smart Support automatically collects the telemetry necessary upon initial boot of the product to deliver device-level configuration data and health insights and is available preinstalled on select products, or it can be downloaded. For more information about how to enable HP Smart Support or to download, please visit http://www.hp.com/smart-support .
[18] Z by HP Data Science Stack Manager requires Windows 10 version 21H2 (Build 19044) and higher or 64-bit Ubuntu 20.04 and is available on select Z workstations.
[19] HP Wolf Security for Business requires Windows 10 or 11 Pro or higher, includes various HP security features and is available on HP Pro, Elite and Workstation products. See product details for included security features and OS requirement.

Specification Footnotes

[1] Not all features are available in all editions or versions of Windows. Systems may require upgraded and/or separately purchased hardware, drivers, software or BIOS update to take full advantage of Windows functionality. Windows is automatically updated and enabled. High speed internet and Microsoft account required. ISP fees may apply and additional requirements may apply over time for updates. See http://www.windows.com .
[2] Windows 11 Pro for Workstations can be preinstalled. You may only use one version of the Windows software at a time. Switching between versions will require you to uninstall one version and install the other version. You must back up all data (files, photos, etc.) before uninstalling and installing operating systems to avoid loss of your data.
[3] Note: Windows 7 and Windows 8 operating systems are not supported on this product. No Windows 7 or Windows 8 drivers will be provided on http://www.support.hp.com .
[5] Note: For detailed Linux® OS/hardware support information, see: http://www.hp.com/support/linux_hardware_matrix .
[6] Multicore is designed to improve performance of certain software products. Not all customers or software applications will necessarily benefit from use of this technology. Performance and clock frequency will vary depending on application workload and your hardware and software configurations. Intel's numbering, branding and/or naming is not a measurement of higher performance.
[7] Intel vPro® requires Windows 10 Pro 64 bit or higher, a vPro supported processor, vPro enabled chipset, vPro enabled wired LAN and/or Wi-Fi 6E WLAN and TPM 2.0. Some functionality requires additional 3rd party software in order to run. Features of vPro® Essentials and Enterprise vary. See http://intel.com/vpro .
[8] For storage drives, GB = 1 billion bytes. TB = 1 trillion bytes. Actual formatted capacity is less. Up to 35GB (for Windows) is reserved for system recovery software.
[9] Duplication of copyrighted material is strictly prohibited. Actual speeds may vary. Double Layer media compatibility will widely vary with some home DVD players and DVD-ROM drives. No support for DVD RAM.
[10] With Blu-Ray, certain disc, digital connection, compatibility and/or performance issues may arise, and do not constitute defects in the product. Flawless playback on all systems is not guaranteed. In order for some Blu-ray titles to play, they may require a DVI or HDMI digital connection and your display may require HDCP support. HD-DVD movies cannot be played on this Desktop PC.
[11] The 2TB memory configuration requires 128GB DIMMs which is planned to be available in the first half of 2023.
[12] Wireless access point and Internet service required and sold separately. Availability of public wireless access points limited. Wi-Fi 6 (802.11ax) is backwards compatible with prior 802.11 specs.
[13] Optional or add-on feature.
[14] Based on US EPEAT® registration according to IEEE 1680.1-2018 EPEAT®. Status varies by country. Visit www.epeat.net for more information.
[15] TCO Certified configurations available when ENERGY STAR configurations are selected with a USB Type-C® connector. ENERGY STAR available with a combination of high-performance CPU's, high-performance GPU's and select memory configurations.
[16] External power supplies, power cords, cables and peripherals are not low halogen. Service parts obtained after purchase may not be low halogen.
[17] HP Performance Advisor Software - HP Performance Advisor is ready and waiting to help you get the most out of your HP Workstation from day one—and every day after. Learn more or download at: https://www8.hp.com/us/en/workstations/performance-advisor.html .
[18] HP Support Assistant requires Windows and Internet access.
[19] HP Manageability Integration Kit can be downloaded from http://www8.hp.com/us/en/ads/clientmanagement/overview.html .
[20] HP Sure Click requires Windows 11 Pro or Enterprise. See https://bit.ly/2PrLT6A_SureClick for complete details.
[21] HP Sure Start Gen7 is available on select HP PCs and Workstations. See product specifications for availability.
[22] HP Sure Recover Gen4 is available on select HP PCs and requires an open network connection. You must back up important files, data, photos, videos, etc. before using HP Sure Recover to avoid loss of data.
[23] HP Sure Sense requires Windows 11 Pro or Enterprise and supports Microsoft Internet Explorer, Google Chrome™, and Chromium™. Supported attachments include Microsoft Office (Word, Excel, PowerPoint) and PDF files in read only mode, when Microsoft Office or Adobe Acrobat are installed.
[24] HP Sure Run Gen5 is available on select HP PCs and requires Windows 10 and higher.
[25] HP Sure Admin requires Windows 10 or higher, HP BIOS, HP Manageability Integration Kit from http://www.hp.com/go/clientmanagement and HP Sure Admin Local Access Authenticator smartphone app from the Android or Apple store.
[26] HP Secure Erase for the methods outlined in the National Institute of Standards and Technology Special Publication 800-88.
[27] HP BIOSphere Gen6 features may vary depending on the platform and configurations.
[28] HP Wolf Pro Security Edition is available preloaded on select SKUs, and, depending on the HP product purchased, includes a license with a term length communicated to you at purchase and in your order confirmation email. The HP Wolf Pro Security Edition software is licensed under the license terms of the HP Wolf Security Software - End-User license Agreement (EULA) that can be found at: https://support.hp.com/us-en/document/ish_3875769-3873014-16 as that EULA is modified by the following: 7. Term. Unless otherwise terminated earlier pursuant to the terms contained in this EULA, the license for the HP Wolf Pro Security Edition is effective upon 4 months after the date the HP Product was shipped by HP and will continue for the term communicated to you at purchase and in your order confirmation email ("Initial Term"). At the end of the Initial Term you may either (a) purchase a renewal license for the HP Wolf Pro Security Edition from HP.com, HP Sales or an HP Channel Partner, or (b) continue using the standard versions of HP Sure Click and HP Sure Sense at no additional cost with no future software updates or HP Support. Notwithstanding the foregoing, the license shall expire no later than one year after the fixed term of the subject license ends.
[29] NVIDIA graphics cards denoting a letter "E" refer to long-life variants of the card.
[30] Y = Supports Intel Speed Select Technology - Performance Profile 2.0 (Intel SST-PP) + = Feature plus SKUs denote support of built-in accelerators (QuickAssist, Dynamic Load Balancer, In-memory Analytics Accelerator) for workload optimized acceleration.
[31] Front I/O offers Battery Charging 1.2 through one of the USB Type-A ports.
[32] Wi-Fi 6E requires a Wi-Fi 6E router, sold separately, to function in the 6GHz band. Availability of public wireless access points limited. Wi-Fi 6E is backwards compatible with prior 802.11 specs. And available in countries where Wi-Fi 6E is supported.
[33] Percentage of ocean-bound plastic contained in each component varies by product.
[34] Recycled plastic content percentage is based on the definition set in the IEEE 1680.1-2018 standard.
[35] 100% outer box packaging and corrugated cushions made from sustainably sourced certified and recycled fibers.
[36] Fiber cushions made from 100% recycled wood fiber and organic materials.
[37] HP Services Scan is provided with Windows Update on select products and will check entitlement on each hardware device to determine if an HP TechPulse-enabled service has been purchased, and will download applicable software automatically. HP TechPulse is a telemetry and analytics platform that provides critical data around devices and applications. For full system requirements or to disable this feature, please visit http://www.hpdaas.com/requirements . Not applicable in China.
[39] The NVIDIA® Mellanox ConnectX-6 DX Dual Port 10/25GbE SFP28 NIC requires a transceiver in order to connect to a network. Transceivers sold separately.
[40] Starting November 1, 2023, HP PCs with Windows require Windows to be installed on SSD. HDD can only be configured as additional data drives and not as the boot drive.
[41] Available late 2023.

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